CLAIMS

1. In a data network comprising a first host, a second host, and a data connection between the first host and the second host, a method implemented at the second host comprising:

   a) determining whether error-induced losses or congestion-losses dominate the data connection;

   b) if congestion-losses dominate the data connection, using a standard transmission protocol technique for acknowledging packets; and

   c) if error-induced losses dominate the connection, sending a plurality of non-duplicate acknowledgements of a single packet whenever a packet is received after an out-of-order packet is received.

2. The method of claim 1 wherein determining whether error-induced losses or congestion-losses dominate the data connection comprises calculating a temperament parameter characterizing an error-proneness of the data connection.

3. The method of claim 2 wherein calculating the temperament parameter comprises taking the product of a packet error rate and a square of a delay-bandwidth product.

4. The method of claim 2 further comprising periodically re-calculating the temperament parameter.

5. The method of claim 2 wherein calculating the temperament parameter uses information normally available at the second host, exclusive of additional information obtained by special request from the first host.

6. The method of claim 1 wherein the standard technique for acknowledging packets is TCP.

7. The method of claim 1 further comprising if error-induced losses dominate the connection, adjusting the receive window length according to a capacity of the data connection.

8. The method of claim 7 wherein adjusting the receive window length comprises calculating a window size $W=RT$, where R is a maximum data rate of the data connection over the wireless link, and T is a round-trip delay for the data connection.

9. The method of claim 1 wherein the plurality of non-duplicate acknowledgements of the single packet comprise N acknowledgements, where N is related to a calculated temperament parameter.

10. The method of claim 1 wherein sending a plurality of non-duplicate acknowledgements of a single packet comprises sending the plurality of non-duplicate acknowledgments at equal intervals within a round-trip time T.

11. A method for providing a packet transport protocol within a data communication network having a first host, a second host, and a lossy link connected to the second host, the method comprising using a standard transport protocol at the first host, and using a modified transport protocol at the second host, wherein the modified transport protocol comprises sending a plurality of non-duplicate acknowledgements of a single packet whenever error-induced losses dominate the data connection and a new packet is received after an out-of-order packet is received.

12. The method of claim 11 further comprising calculating a temperament parameter characterizing an error-proneness of the data connection.

13. The method of claim 12 wherein calculating the temperament parameter comprises taking the product of a packet error rate and a square of the delay-bandwidth product.

14. The method of claim 11 wherein the modified transport protocol comprises adjusting the receive window length of the second host according to a

capacity of the data connection if error-induced losses dominate the connection.

15. The method of claim 11 wherein the standard transport protocol is TCP.

16. A method for acknowledging packets in a data communications host communicating over a lossy data connection, the method comprising: if error-induced losses dominate the data connection, sending a plurality of non-duplicate acknowledgements of a single packet in response to receiving a new packet after receiving an out-of-order packet.

17. The method of claim 16 further comprising calculating a temperament parameter characterizing an error-proneness of the data connection.

18. The method of claim 17 wherein calculating the temperament parameter comprises taking the product of a packet error rate and a square of a delay-bandwidth product.

19. The method of claim 17 further comprising: if error-induced losses dominate the data connection, adjusting the receive window length of the host according to a capacity of the data connection.